

What is claimed is:

1. An image processing method for forming images on an image forming device based on a file stored in an image forming data transmission device using a portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, comprising:

a step (1) wherein said portable terminal establishes a connection with said image forming data transmission device via said second internal network, said second firewall, said external network, said first firewall and said first internal network using a protocol, which is allowed to make bi-directional connections between the internal network and the external network at said first firewall and said second firewall;

a step (2) wherein said portable terminal transmits an image forming request for said file stored in said image forming data transmission device to said image forming data transmission device;

a step (3) wherein said image forming data transmission device receives said image forming request transmitted by

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said portable terminal in the step (2) and prepares an image forming data for said file according to said image forming request;

5 a step (4) wherein said image forming data transmission device establishes a connection with said file server via said first internal network, said first firewall, and said external network using a protocol, which is allowed to make connections only from the internal network to the external network at said first firewall;

10 a step (5) wherein said image forming data transmission device uploads said image forming data prepared in the step (3) to said file server;

15 a step (6) wherein said image forming device establishes a connection with said file server via said second internal network, said second firewall, and said external network using a protocol, which is allowed to make connections only from the internal network to the external network at said second firewall;

20 a step (7) wherein said image forming device downloads said image forming data from said file server; and

a step (8) wherein said image forming device forms said image based on said image forming data downloaded in the step (7).

2. An image processing method according to claim 1 further

comprising between the step (5) and the step (6):

a step (9) wherein said image forming data transmission device transmits a storage location data indicating where said image forming data uploaded in the step (5) is stored

5. on said file server to said portable terminal;

a step (10) wherein said portable terminal receives said storage location data which said image forming data transmission device transmitted in the step (9);

10 a step (11) wherein said portable terminal displays said storage location data received in the step (10); and

a step (12) wherein said image forming device receives an entry of said storage location data;

15 wherein said image forming device downloads said image forming data from the storage location on said file server based on said storage location data in the step (7).

3. An image processing method according to claim 1 further comprising between the step (5) and the step (6):

20 a step (9) wherein said image forming data transmission device transmits a storage location data indicating where said image forming data uploaded in the step (5) is stored on said file server to said portable terminal;

a step (10) wherein said portable terminal receives said storage location data which said image forming data transmission device transmitted in the step (9);

a step (13) wherein said portable terminal transfers said storage location data received in the step (10) to said image forming device via said second internal network or a local communication circuit; and

5 a step (14) wherein said image forming device receives said storage location data transferred by said portable terminal at the step (13);

wherein said image forming device downloads said image forming data from the storage location on said file server
10 based on said storage location data in the step (7).

4. An image processing method according to claim 1 further comprising between the step (5) and the step (6):

a step (15) wherein said file server transmits a storage location data indicating where said image forming data
15 uploaded by said image forming data transmission device in the step (5) is stored on said file server to said portable terminal;

a step (16) wherein said portable terminal receives said storage location data which said file server transmitted in
20 the step (15);

a step (17) wherein said portable terminal displays said storage location data received in the step (16); and

a step (18) wherein said image forming device receives an entry of said storage location data;

wherein said image forming device downloads said image forming data from the storage location on said file server based on said storage location data in the step (7).

5. An image processing method according to claim 1 further comprising between the step (5) and the step (6):

10 a step (15) wherein said file server transmits a storage location data indicating where said image forming data uploaded by said image forming data transmission device in the step (5) is stored on said file server to said portable terminal;

a step (16) wherein said portable terminal receives said storage location data which said file server transmitted in the step (15);

15 a step (19) wherein said portable terminal transfers said storage location data received in the step (16) to said image forming device via said second internal network or a local communication circuit;

20 a step (20) wherein said image forming device receives said storage location data transferred by said portable terminal in the step (19);

wherein said image forming device downloads said image forming data from the storage location on said file server based on said storage location data in the step (7).

6. An image processing method according to claim 1 wherein

said image forming device is a printer and said image forming data is a printing job.

7. An image processing method for forming an image on an image forming device based on a file stored in an image forming data transmission device using a portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, comprising:

a step (1) wherein said portable terminal establishes a connection with said image forming data transmission device via a public network, a public network authenticating server connected to said first internal network, and said first internal network;

a step (2) wherein said portable terminal transmits an image forming request for said file stored in said image forming data transmission device to said image forming data transmission device;

a step (3) wherein said image forming data transmission device receives said image forming request transmitted by said portable terminal in the step (2) and prepares an image forming data for said file according to said image forming

request;

a step (4) wherein said image forming data transmission device establishes a connection with said file server via said first internal network, said first firewall, and said external network using a protocol, which is allowed to make connections only from the internal network to the external network at said first firewall;

a step (5) wherein said image forming data transmission device uploads said image forming data prepared in the step (3) to said file server;

a step (6) wherein said image forming device establishes a connection with said file server via said second internal network, said second firewall, and said external network using a protocol, which is allowed to make connections only from the internal network to the external network at said second firewall;

a step (7) wherein said image forming device downloads said image forming data from said file server; and

a step (8) wherein said image forming device forms said image based on said image forming data downloaded in the step (7).

8. An image processing method according to claim 7 further comprising between the step (5) and the step (6):

a step (9) wherein said image forming data transmission

device transmits a storage location data indicating where said image forming data uploaded in the step (5) is stored on said file server to said portable terminal;

5 a step (10) wherein said portable terminal receives said storage location data which said image forming data transmission device transmitted in the step (9);

a step (11) wherein said portable terminal displays said storage location data received in the step (10); and

10 a step (12) wherein said image forming device receives an entry of said storage location data;

wherein said image forming device downloads said image forming data from the storage location on said file server based on said storage location data in the step (7).

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9. An image processing method according to claim 7 further
15 comprising between the step (5) and the step (6):

a step (9) wherein said image forming data transmission device transmits a storage location data indicating where said image forming data uploaded in the step (5) is stored on said file server to said portable terminal;

20 a step (10) wherein said portable terminal receives said storage location data which said image forming data transmission device transmitted in the step (9);

a step (13) wherein said portable terminal transfers said storage location data received in the step (10) to said

image forming device via said second internal network or a local communication circuit; and

a step (14) wherein said image forming device receives said storage location data transferred by said portable terminal at the step (13);

wherein said image forming device downloads said image forming data from the storage location on said file server based on said storage location data in the step (7).

10. An image processing method according to claim 7 further comprising between the step (5) and the step (6):

a step (15) wherein said file server transmits a storage location data indicating where said image forming data uploaded by said image forming data transmission device in the step (5) is stored on said file server to said portable terminal;

a step (16) wherein said portable terminal receives said storage location data which said file server transmitted in the step (15);

a step (17) wherein said portable terminal displays said storage location data received in the step (16); and

a step (18) wherein said image forming device receives an entry of said storage location data;

wherein said image forming device downloads said image forming data from the storage location on said file server

based on said storage location data in the step (7).

11. An image processing method according to claim 7 further comprising between the step (5) and the step (6):

a step (15) wherein said file server transmits a storage
5 location data indicating where said image forming data
uploaded by said image forming data transmission device in
the step (5) is stored on said file server to said portable
terminal;

a step (16) wherein said portable terminal receives said
10 storage location data which said file server transmitted in
the step (15);

a step (19) wherein said portable terminal transfers
said storage location data received in the step (16) to said
image forming device via said second internal network or a
15 local communication circuit;

a step (20) wherein said image forming device receives
said storage location data transferred by said portable
terminal in the step (19);

wherein said image forming device downloads said image
20 forming data from the storage location on said file server
based on said storage location data in the step (7).

12. An image processing method according to claim 7 wherein
said image forming device is a printer and said image forming
data is a printing job.

13. An image processing system for forming an image on an image forming device based on a file stored in an image forming data transmission device, using a portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, wherein

said portable terminal comprises

a connection establishing means for establishing a connection with said image forming data transmission device via said second internal network, said second firewall, said external network, said first firewall and said first internal network using a protocol, which is allowed to make bi-directional connections between the internal network and the external network at said first firewall and said second firewall, and

an image forming request transmission means for transmitting an image forming request for said file stored in said image forming data transmission device to said image forming data transmission device;

said image forming data transmission device comprises
an image forming request receiving means for receiving

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said image forming request from said portable terminal,
an image forming data preparing means for preparing an
image forming data for said file based on said image forming
request received by said image forming request receiving
5 means,

a connection establishing means for establishing a
connection with said file server via said first internal
network, said first firewall, and said external network using
a protocol, which is allowed to make connections only from
10 the internal network to the external network at said first
firewall, and

an image forming data upload means for uploading said
image forming data prepared by said image forming data
preparing means to said file server; and

15 said image forming device comprises

a connection establishing means for establishing a
connection with said file server via said second internal
network, said second firewall, and said external network using
a protocol, which is allowed to make connections only from
20 the internal network to the external network at said second
firewall,

an image forming data download means for downloading
said image forming data from said file server, and

an image forming means for forming said image based on

said image forming data downloaded by said image forming data download means.

14. An image processing system according to claim 13 wherein said image forming device is a printer and said image forming data is a printing job.

15. An image processing system for forming an image on an image forming device based on a file stored in an image forming data transmission device, using a portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, wherein

said portable terminal comprises

a connection establishing means for establishing a connection with said image forming data transmission device via a public network, a public network authenticating server connected to said first internal network, and said first internal network, and

an image forming request transmission means for transmitting an image forming request for said file stored in said image forming data transmission device to said image forming data transmission device;

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said image forming data transmission device comprises
an image forming request receiving means for receiving
said image forming request from said portable terminal,
an image forming data preparing means for preparing image
5 forming data for said file based on said image forming request
received by said image forming request receiving means,

a connection establishing means for establishing a
connection with said file server via said first internal
network, said first firewall, and said external network using
10 a protocol, which is allowed to make connections only from
the internal network to the external network at said first
firewall, and

an image forming data upload means for uploading said
image forming data prepared by said image forming data
15 preparing means to said file server; and

said image forming device comprises

a connection establishing means for establishing a
connection with said file server via said second internal
network, said second firewall, and said external network using
20 a protocol, which is allowed to make connections only from
the internal network to the external network at said second
firewall,

an image forming data download means for downloading
said image forming data from said file server, and

an image forming means for forming said image based on said image forming data downloaded by said image forming data download means.

16. An image processing system according to claim 15 wherein said image forming device is a printer and said image forming data is a printing job.

17. A portable terminal for forming an image on an image forming device based on a file stored in an image forming data transmission device, using said portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, comprising:

a connection establishing means for establishing a connection with said image forming data transmission device via said second internal network, said second firewall, said external network, said first firewall and said first internal network using a protocol, which is allowed to make bi-directional connections between the internal network and the external network at said first firewall and said second firewall; and

an image forming request transmission means for

transmitting an image forming request for said file stored in said image forming data transmission device to said image forming data transmission device.

18. A portable terminal according to claim 17 further comprising:

a storage location data receiving means for receiving a storage location data indicating where an image forming data for said file uploaded to said file server by said image forming data transmission device is located on said file server; and

a storage location data display means for displaying said storage location data received by said storage location data receiving means.

19. A portable terminal according to claim 17 further comprising:

a storage location data receiving means for receiving a storage location data indicating where an image forming data for said file uploaded to said file server by said image forming data transmission device is located on said file server; and

a storage location data transferring means for transferring said storage location data received by said storage location data receiving means via said second internal network or local communication circuit to said image forming

device.

20. A portable terminal according to claim 17 wherein said image forming device is a printer and said image forming data is a printing job.

5 21. A portable terminal for forming an image on an image forming device based on a file stored in an image forming data transmission device, using said portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said
10 image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, comprising:

15 a connection establishing means for establishing a connection with said image forming data transmission device via a public network, a public network authenticating server connected to said first internal network, and said first internal network; and

20 an image forming request transmission means for transmitting an image forming request for said file stored in said image forming data transmission device to said image forming data transmission device.

22. A portable terminal according to claim 21 further comprising:

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a storage location data receiving means for receiving
a storage location data indicating where an image forming
data for said file uploaded to said file server by said image
forming data transmission device is located on said file
5 server; and

a storage location data display means for displaying
said storage location data received by said storage location
data receiving means.

23. A portable terminal according to claim 17 further
10 comprising:

a storage location data receiving means for receiving
a storage location data indicating where an image forming
data for said file uploaded to said file server by said image
forming data transmission device is located on said file
15 server; and

a storage location data transferring means for
transferring said storage location data received by said
storage location data receiving means via said second internal
network or local communication circuit to said image forming
20 device.

24. A portable terminal according to claim 17 wherein said
image forming device is a printer and said image forming data
is a printing job.

25. An image forming data transmission device for forming

an image on an image forming device based on a file stored in said image forming data transmission device, using a portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, comprising:

10 a file storage means for storing said file;

an image forming request receiving means for receiving an image forming request for said file stored in said file storage means from said portable terminal;

an image forming data preparing means from preparing
15 an image forming data for said file based on said image forming request received by said image forming request receiving means;

a connection establishing means for establishing a connection with said file server via said first internal
20 network, said first firewall, and said external network using a protocol, which is allowed to make connections only from the internal network to the external network at said first firewall; and

an image forming data uploading means for uploading said

image forming data prepared by said image forming data preparing means to said file server.

26. An image forming data transmission device according to claim 25 further comprising a storage location data transmitting means for transmitting a storage location data indicating where said image forming data uploaded to said file server by said image forming data uploading means is located on said file server to said portable terminal.

27. An image forming data transmitting device according to claim 25 wherein said image forming device is a printer and said image forming data is a printing job.

28. An image forming device for forming an image based on a file stored in an image forming data transmission device, using a portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, comprising:

a connection establishing means for establishing a connection with said file server via said second internal network, said second firewall, and said external network using a protocol, which is allowed to make connections only from

the internal network to the external network at said second firewall;

an image forming data download means for downloading from said file server an image forming data for said file
5 uploaded by said image forming data transmission device to said file server; and

an image forming means for forming said image based on said image forming data downloaded by said image forming data downloading means.

10 29. An image forming device according to claim 28 further comprising a storage location data receiving means for receiving a storage location data indicating where said image forming data is located on said file server,

wherein said image forming data downloading means
15 downloads said image forming data from the storage location on said file server based on said storage location data received by said storage location data receiving means.

30. An image forming device according to claim 28 further comprising a storage location data receiving means for
20 receiving a storage location data indicating where said image forming data is located on said file server from said portable terminal via said second internal network or local communication circuit;

wherein said image forming data downloading means

downloads said image forming data from the storage location
onsaidfileserverbasedonsaidstoragelocationdatareceived
by said storage location data receiving means.

31. An image forming device according to claim 28 wherein
5 said image forming device is a printer and said image forming
data is a printing job.

32. A program to control a portable terminal for forming
an image on an image forming device based on a file stored
in an image forming data transmission device, using said
10 portable terminal, said image forming data transmission
device connected to a first internal network constructed
inside a first firewall, said image forming device connected
to a second internal network constructed inside a second
firewall, and a file server connected to an external network
15 constructed on the outside of said first firewall and said
second firewall, characterized in causing said portable
terminal to execute:

a step (1) of establishing a connection with said image
forming data transmission device via said second internal
20 network, said second firewall, said external network, said
first firewall and said first internal network using a protocol,
which is allowed to make bi-directional connections between
the internal network and the external network at said first
firewall and said second firewall, and

a step (2) of transmitting an image forming request for said file stored in said image forming data transmission device to said image forming data transmission device.

33. A recording medium that stores the program described in claim 32.

34. A program to control a portable terminal for forming an image on an image forming device based on a file stored in an image forming data transmission device, using said portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, characterized in causing said portable terminal to execute:

a step (1) of establishing a connection with said image forming data transmission device via a public network, a public network authenticating server connected to said first internal network, and said first internal network, and

a step (2) of transmitting an image forming request for said file stored in said image forming data transmission device to said image forming data transmission device.

35. A recording medium that stores the program described

in claim 34.

36. A program to control an image forming data transmission device for forming an image on an image forming device based on a file stored in said image forming data transmission device, using a portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, characterized in causing said image forming data transmission device to execute:

a step (1) of receiving an image forming request for said file from said portable terminal;

a step (2) of preparing an image forming data for said file based on said image forming request received in the step (1);

a step (3) of establishing a connection with said file server via said first internal network, said first firewall, and said external network using a protocol, which is allowed to make connections only from the internal network to the external network at said first firewall; and

a step (4) of uploading said image forming data prepared in the step (2) to said file server.

37. A recording medium that stores the program described in claim 36.

38. A program to control an image forming device for forming an image based on a file stored in an image forming data transmission device, using a portable terminal, said image forming data transmission device connected to a first internal network constructed inside a first firewall, said image forming device connected to a second internal network constructed inside a second firewall, and a file server connected to an external network constructed on the outside of said first firewall and said second firewall, characterized in causing said image forming device to execute:

a step (1) of establishing a connection with said file server via said second internal network, said second firewall and said external network using a protocol, which is allowed to make connections only from the internal network to the external network at said second firewall;

a step (2) of downloading from said file server an image forming data for said file uploaded by said image forming data transmission device to said file server; and

a step (3) of printing based on said image forming data downloaded in the step (2).

39. A recording medium that stores the program described in claim 38.